million). I used two sample *t* tests to analyse differences in means. Data were normally distributed.

Total inpatient bed days per 10 000 people increased significantly from 17.0 (SD 7.4) at 12 years to 24.6 (SD 7.7) at 19 years ($t=-4.5$, $P<0.000$) (figure). Bed days for males were significantly higher than females at age 12 years; however, bed usage by females surpassed that of males from 17 years. Bed days for females but not males increased significantly during adolescence. Total bed days of day cases per 10 000 people increased significantly from 2.32 (SD 1.82) at 12 years to 4.31 (SD 1.38) at 19 years ($t=-6.8$, $P<0.000$). I found no increase in bed days of male day cases during adolescence, however in females bed days increased significantly between 12 and 19 years. Females used significantly more bed days as day cases than did males from 16 years onwards. Bed day usage (inpatient and day case) was not related to the population of the health authority.

Data from all Scottish health boards (population 5.2 million) allowed calculations of the use of inpatient beds per 10 000 people of a specific age. Bed day use increased significantly from 1604.2 (SD 100.5) per 10 000 12 year olds to 2099.4 (SD 82.1) per 10 000 19 year olds ($t=-3.4$, $P<0.005$). I found no significant differences between sexes. Total inpatient bed use was 3732.5 per 10 000 young people aged 12-19 years.

Comment

Adolescents aged 12 to 19 years occupy an average of 18 inpatient beds and 2.2 day case beds in a district general hospital nominally serving 250 000 people. The use of hospital beds increases rather than decreases through adolescence. This contradicts the assumption that adolescents use hospitals rarely and do not merit separate facilities. An average district general hospital has the activity to support a ward for adolescents of 12 to 15 beds. Overall, 12.8 inpatient beds are required for each 10 000 adolescents aged 12 to 19 years in the hospital catchment area (based on standard assumptions of an 80% bed occupancy). Although dedicated wards for adolescents may not be possible in many hospitals, the provision of other facilities should be considered.

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Anaemia in Chinese, South Asian, and European populations in Newcastle upon Tyne: cross sectional study

Colin Fischbacher, Raj Bhopal, Sheila Patel, Martin White, Nigel Unwin, K G M M Alberti

Department of Epidemiology and Public Health, Medical School, University of Newcastle, Newcastle upon Tyne NE2 4HH
Colin M Fischbacher *lecturer in public health medicine*
Sheila Patel *research associate*
Martin White *senior lecturer in public health*
Nigel Unwin *senior lecturer in epidemiology*
Department of Diabetes, Medical School, University of Newcastle
K G M M Alberti *professor of medicine*

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Britt drew attention to anaemia in Punjabi women in Southall nearly 20 years ago.[1] Representative population data on anaemia in adults from ethnic minorities in the United Kingdom have not been published since then. We used data from the Newcastle heart project[2 3] to assess the prevalence of anaemia in South Asian (Indian, Pakistani, and Bangladeshi) and Chinese ethnic groups.

Methods and results

The Newcastle heart project was a stratified random sample of 1889 Newcastle residents of European (n=825), Indian (259), Pakistani (305), Bangladeshi (120), and Chinese (380) ethnic origin, studied during 1991-7. Chinese respondents were aged 25-64 years; the others were aged 25-74 years. Full details have been published elsewhere.[2 3] Haemoglobin and red cell indices were determined with a Coulter STKS analyser. We defined anaemia as a haemoglobin <130 g/l in men and <120 g/l in women. We compared respondents who ate beef, pork, lamb, chicken, or fish with those who rarely or never did. Women were asked about their menstrual history, though this information was not available for Chinese respondents. Odds ratios were estimated from logistic regression using Stata 6.0 (Stata Corporation, College Station, TX).

Haemoglobin was lowest in men of European origin and highest in those of Chinese origin, whereas haemoglobin was lower in South Asian and Chinese women than in European women (table). The prevalence of anaemia was similar among men of all ethnic groups. However, anaemia was 3.0 (95% confidence interval 2.0 to 4.4) times more prevalent in South Asian women than in European women and 2.1 (1.3 to 3.3) times more prevalent in Chinese women than in European women. The findings were similar when the analysis was confined to non-smokers. One per cent (0.3% to 2.6%) of European women and 4.0% (2.2% to 6.6%) of South Asian women had haemoglobin <100 g/l. Anaemia was less prevalent after the menopause in European women but remained common after the menopause among Indian and Bangladeshi women.

Of Indian respondents, 32% rarely or never ate meat compared with less than 2% of other ethnic groups. Among Indian respondents, 23% of those who did not eat meat and 13% of those who did were anaemic. The numbers who did not eat meat were too small for analysis by any other ethnic group. The odds

Number of respondents, percentage with anaemia,* and mean haemoglobin by sex, menopausal status, and ethnic group

	European	South Asian†	Indian	Pakistani	Bangladeshi	Chinese‡
Men						
No	423	322	104	155	63	180
Percentage (95% CI) with anaemia	5.7 (3.7 to 8.3)	6.2 (3.8 to 9.4)	6.7 (2.7 to 13.4)	5.8 (2.7 to 10.7)	6.3 (1.8 to 15.5)	4.4 (1.9 to 8.6)
Mean (SD) haemoglobin (g/l)	148 (11)	149 (12)	149 (12)	150 (12)	149 (12)	151 (12)
All women						
No	396	349	153	147	49	191
Percentage (95% CI) with anaemia	7.6 (5.2 to 10.6)	22.3 (18.1 to 27.1)	22.2 (15.9 to 29.6)	19.0 (13.0 to 26.3)	32.7 (19.9 to 47.5)	15.7 (10.9 to 21.7)
Mean (SD) haemoglobin (g/l)	133 (11)	128 (13)	126 (13)	130 (13)	124 (11)	131 (13)
Premenopausal women						
No	144	171	68	81	22	Not available
Percentage (95% CI) with anaemia	10.4 (5.9 to 16.6)	25.7 (19.4 to 33.0)	20.6 (11.7 to 32.1)	28.4 (18.9 to 39.5)	31.8 (13.9 to 54.9)	
Mean (SD) haemoglobin (g/l)	131 (13)	126 (14)	125 (15)	128 (14)	125 (10)	
Postmenopausal women						
No	215	158	78	58	22	Not available
Percentage (95% CI) with anaemia	5.6 (2.9 to 9.5)	20.3 (14.3 to 27.4)	25.6 (16.4 to 36.8)	6.9 (1.9 to 16.7)	36.4 (17.2 to 59.3)	
Mean (SD) haemoglobin (g/l)	135 (10)	129 (12)	126 (11)	133 (13)	124 (11)	

*Haemoglobin <130 g/l in men, <120 g/l in women.
†Indian, Pakistani, and Bangladeshi respondents are included in the total for South Asians.
‡Age range 25-64 years (25-74 years in all other respondents).

ratio for anaemia in those who did not eat meat, adjusted for sex, menopausal status, and ethnic group, was 1.86 (0.96 to 3.62) for all ethnic groups combined.

Among the 54 Europeans, 98 South Asians, and 37 Chinese respondents with anaemia, 10%, 41%, and 62% respectively had microcytic anaemia (mean cell volume <76 fl). The mean cell haemoglobin was <27 pg (suggesting the need for screening for thalassaemia[4]) in 3% of Europeans, 22% of South Asians, and 15% of Chinese respondents.

Comments

Our findings show that anaemia remains common among women of South Asian and Chinese ethnic origin in the United Kingdom, occurring much more commonly than in women of European ethnic origin. Anaemia in South Asian and Chinese respondents was predominantly microcytic and, although we lack confirmatory data, may be related to iron deficiency. Around 4% of South Asians and 8% of Chinese people in the United Kingdom carry sickling or thalassaemia genes, so these conditions are unlikely to explain a large part of the anaemia we observed.[4] Anaemia tended to be more common in those who rarely or never ate meat; 87% of British Indians described themselves as vegetarians in a recent survey.[5] Awareness of the link between anaemia and diet may be low; in a national lifestyle survey less than 1% of respondents mentioned anaemia as a problem related to diet.[5]

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Department of Public Health Sciences, University of Edinburgh, Edinburgh EH8 9AG
Raj Bhopal *professor of public health*
Correspondence to: C Fischbacher c.m.fischbacher@ncl.ac.uk

Endpiece

Avoid the British winter

As this climate is, perhaps, the most unsteady of any in Europe, it would be proper that wealthy individuals … should retire to a southern part of the continent, as Nice, Naples, or Lisbon, or the island of Madeira, and there reside from the month of September or October to the middle of May, accompanied by a skilful, humane and cheerful English physician, whose advice ought to be solely relied on, and implicitly complied with: for it is most certain, that the physicians in the continent are a century behind us in medical knowledge; those of France, Italy and Portugal, especially.

Adair JM. *Medical cautions, for the consideration of invalids*. Bath: R Crutwell,1786:95

Submitted by Jeremy Hugh Baron, honorary professorial lecturer, New York